

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 January 2005 (20.01.2005)

PCT

(10) International Publication Number
WO 2005/005662 A3

(51) International Patent Classification⁷: C12N 5/06, 15/79, 15/82, C12Q 1/68

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number: PCT/EP2004/007529

(22) International Filing Date: 8 July 2004 (08.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03015400.9 8 July 2003 (08.07.2003) EP
60/485,462 8 July 2003 (08.07.2003) US

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(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report: 12 May 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2005/005662 A3

(54) Title: SECRETED PROTEINS AS MARKERS FOR CELL DIFFERENTIATION

(57) **Abstract:** Provided are means and methods for in vitro and in vivo detection of chemically induced effects on embryonic development and differentiation for the purpose of embryotoxicity/teratogenicity screening as well as for the identification of pharmaceuticals such as growth and tissue promoting factors based on differentiating pluripotent embryonic stem (ES) cells. The assays are based on the use of transgenic ES cells and non-human animals comprising such ES cells or derivatives thereof, wherein said ES cells are characterized by the differentiation-dependent expression of a secreted reporter protein; in particular secreted embryonic alkaline phosphatase (SEAP).